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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/443,460	11/19/1999	KAZUOMI KOBAYASHI	Q56893	7280

7590

07/28/2003

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EXAMINER

FISCHER, JUSTIN R

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 07/28/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/443,460

Applicant(s)

KOBAYASHI ET AL.

Examiner

Justin R Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-24 is/are allowed.
- 6) ☒ Claim(s) 10-13, 15, 17 and 25 is/are rejected.
- 7) ☒ Claim(s) 14, 16 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Prosecution Application

1. The request filed on July 11, 2003 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/443,460 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 10-13, 15, 17, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osawa (JP 04-274910, newly cited) in view of Spragg (US 5,769,980, of record), Hayashi (US 5,427,176, of record), and Kaneko (US 4,265,288, of record). As best depicted in Figures 1-4, Osawa discloses a pneumatic tire construction having a radial carcass 17 extending between a pair of bead cores 12, a tread portion comprised of one or more rubberized cord plies 25, 26, a belt arranged at an outer peripheral surface of said carcass, a bead filler rubber 23 taperingly extending toward an outer end of said tread portion, and a shock absorbing rubber layer or rubber protection sheet 50 that is disposed radially inward from a position of a line segment in parallel to the rotating axial line of the tire passing through an outer end of said bead filler rubber. In this instance, the rubber protection sheet is defined as having a lower

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modulus as compared to the carcass topping rubber, it being recognized that the modulus and hardness have a positive relationship in that a higher modulus generally corresponds to a harder rubber formulation (Abstract). However, the reference is silent with respect to the use of a sidewall rubber-reinforcing layer (runflat insert) arranged at an inner surface side of an innermost carcass ply. In any event, sidewall rubber-reinforcing layers are conventionally employed in such a location (axially inside an innermost carcass ply and over the radial extent of the sidewall portion) to provide a tire with runflat capability, as evidenced by Spragg (Figure 1 and Column 1, Lines 22-26), Kaneko (Figure 1 and Column 3, Lines 24-27), and Hayashi (Figure 1, Column 1, Lines 29-36, and Column 3, Lines 5-22). These references evidence the extremely well known use of sidewall runflat inserts in order to provide pneumatic tires with runflat capability (ability to operate in a punctured state over an extended period of time). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a conventional sidewall rubber-reinforcing layer in the tire of Osawa as further set forth below.

It is initially noted that the shearing strains (between the bead filler rubber and the carcass nearest ply thereto) that necessitated the inclusion of a rubber protection sheet in Osawa would be present, perhaps to a less extent, even if a sidewall run flat insert is arranged inside the innermost carcass ply. Thus, one of ordinary skill in the art at the time of the invention would not have eliminated the use of the rubber protection upon modifying the tire of Osawa with a runflat insert. This fact is further evidenced by Figure 7 of the original disclosure in which shearing strains (A) are present even though a sidewall runflat insert is included.

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With respect to claim 10, Osawa is directed to a pneumatic tire construction in which a rubber protection sheet is disposed between a bead filler rubber and an adjacent carcass ply. Osawa states that this rubber layer is used to (a) eliminate the buildup of stresses at the carcass turnup portion and (b) ultimately improve bead durability. Although Osawa is not specifically directed to a runflat tire, it is well known and conventional to include a pair of sidewall rubber reinforcing layers to form a "runflat" tire and eliminate the sidewall and tread buckling normally associated with a deflated condition. Spragg, Kaneko, and Hayashi all illustrate the extremely well known use of sidewall inserts to provide runflat capabilities. One of ordinary skill in the art at the time of the invention would have been motivated to include a pair of sidewall rubber reinforcing layers in the tire design of Osawa in order to provide runflat capability and eliminate the sidewall and tread buckling normally encountered in a deflated condition. It is lastly noted that the claim as currently drafted only requires the inclusion of a rubber reinforcing layer or sidewall runflat insert- the claim fails to require any unique composition for the sidewall insert, any unique positioning for the sidewall insert, any unique dimensions for the sidewall insert, or any additional properties/characteristics for the sidewall insert. Thus, one of ordinary skill in the art at the time of the invention would have found the general inclusion of a sidewall insert in the pneumatic tire of Osawa to be obvious for the benefits detailed above.

Regarding claim 11, Figures 1, 2, and 4 clearly depict a turnup portion for carcass ply 17.

With respect to claim 12, Figures 1, 2, and 4 expressly depict the inclusion of the rubber protection sheet over both sides of a straight line drawn from a curvature center of a flange at an inclination angle of 60 degrees.

Regarding claim 13, the rubber protection sheet of Osawa extends along the carcass turnup end (slightly above and slightly below) at a position below the outer end of the bead filler. In modifying Osawa with a conventional sidewall rubber reinforcing layer, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the radially inner end of the rubber protection sheet to be radially outward of the radially inner end of the sidewall rubber reinforcing layer as said sidewall rubber reinforcing layers conventionally extend well into the bead portion and approach the radially inner end of the bead core. It is noted that the claim only requires that the rubber protection sheet be "existent" in the defined zone (e.g. only the radially outer end of the rubber protection sheet must be radially outward of the radially inner end of the sidewall runflat insert).

With respect to claim 15, as stated above, Osawa teaches that the rubber protection sheet be formed of a composition having a 50% modulus less than the same of the carcass ply. This suggests that the 50% modulus of the rubber protection sheet is less than 1.0 times the 50% modulus of the carcass ply. In this instance, applicant requires that the 50% modulus of the rubber protection sheet be between 0.30 and 0.84 times the 50% modulus of the carcass ply. One of ordinary skill in the art at the time of the invention would have readily appreciated the broad range of the claimed invention in view of the description set forth by Osawa, there being no evidence of any unexpected results to establish a criticality for the broad range of the claimed invention.

Regarding claim 17, Osawa teaches that the total thickness T of the rubber protection sheet and a portion of the carcass topping rubber is greater than or equal to 0.5 times the diameter of the carcass reinforcing elements. Based on the broad range described by Osawa, the depiction by Osawa that the rubber protection constitutes a significant portion of the thickness T, and the dependency of the thickness T on the size of the carcass reinforcing elements (and thus the size of the tire), one of ordinary skill in the art at the time of the invention would have found it obvious to form a rubber protection sheet with a thickness between 0.4 and 4.0 millimeters.

With respect to claim 25, as previously stated, the rubber protection sheet is softer than the carcass topping rubber in view of the comparison of the 50% modulus set forth by Osawa. Regarding the hardness of the sidewall rubber-reinforcing layer, it is extremely well known in the tire industry that such a layer is formed of a relatively hard rubber, such that one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the rubber protection sheet of Osawa to be softer than the sidewall rubber reinforcing layer. It is noted that Hayashi specifically states that the sidewall rubber reinforcing layer must be harder than the carcass and sidewall rubber formulations (Column 3, Lines 5-10), further suggesting that the rubber protection sheet would be softer than the sidewall rubber reinforcing layer.

Allowable Subject Matter

4. Claims 14, 16, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding the use of multiple

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rubber protection sheets in a region between the bead filler rubber and the carcass ply, Yamagishi (JP 8-175132) teaches a pneumatic tire construction in which a pair of buffer rubber layers or rubber protection sheets are disposed in the claimed bead region.

However, the rubber protection sheets of Yamagishi are each formed of a harder rubber composition as compared to the carcass topping rubber and a softer rubber composition as compared to the bead filler rubber while the claimed invention requires that the rubber protection sheet (first) be formed of a softer rubber than both the carcass topping rubber and the bead filler.

5. Claims 19-24 are allowed. There was no reference in the prior art search that disclosed, suggested, or taught a pneumatic, runflat tire construction comprising a radial carcass, a tread portion, a belt, a bead filler, a sidewall insert (rubber reinforcing layer), and at least one rubber protection sheet disposed between the bead filler and the carcass ply surrounding it, wherein said sidewall insert is arranged at an inner surface side of the innermost carcass ply over the sidewall region between the bead and the tread and said at least one rubber protection sheet is softer than the bead filler and formed of a rubber formulation exhibiting a loss hysteresis (tan delta) at 25 °C between 0.04 and 0.11. While it would have been obvious to one of ordinary skill in the art at the time of the invention to include a runflat insert in the tire of Osawa, which contains a protection sheet, in view of Spragg, Kaneko, Hayashi, and Kobayashi, Osawa fails to compare the hardness of the rubber protection sheet and the bead filler rubber- the reference only suggests a lower hardness (modulus) for the rubber protection sheet as compared to the same of the carcass topping rubber. Also, Osawa is completely silent with respect to the loss hysteresis of the rubber formulation of the rubber protection

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sheet and thus necessarily fails to suggest a range between 0.04 and 0.11 at 25 °C.

One of ordinary skill in the art at the time of the invention would not have found it obvious to form the rubber protection sheet of Osawa with the claimed properties, especially in light of the small and narrow range for the loss hysteresis required by the claimed invention.

Conclusion


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Justin Fischer

July 22, 2003


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700